

KENNEDY SPACE CENTER
Apollo Program Directive

DATE: March 17, 1967

KSC APOLLO PROGRAM DIRECTIVE NO. 10

TO : Distribution

FROM: 
Apollo Program Manager

SUBJECT : KSC Sign-Off of Certificate of Flight Worthiness Endorsements 4 and 5

- REFERENCES:
- (a) NPC 500-10
 - (b) Apollo Program Directive No. 6A, "Sequence and Flow of Hardware Development and Key Inspection, Review and Certification Check-points," dated 18 August 1966.
 - (c) MSFC Document I-IB/V-TD No. 100, "Procedure for Certification of Flight Worthiness," dated 16 March 1966.
 - (d) Apollo Program Directive No. 14, "Change Control of Apollo Space Vehicles at KSC," dated 6 January 1966.
 - (e) Flight Readiness Review Implementation Plans

I. PURPOSE

The purpose of this document is to establish and implement a procedure for Kennedy Space Center (KSC) sign-off of the required endorsements to the Certificate of Flight Worthiness (COFW) for the launch vehicle.

II. SCOPE

This document delineates the requirements and responsibilities for KSC sign-off of Endorsements 4 and 5 of the COFW as defined in the Marshall Space Flight Center (MSFC) Document I-IB/V-TD No. 100. This directive is applicable to both the Uprated Saturn I and the Saturn V launch vehicles.

III. PROCEDURES

In accordance with Paragraph 3.3.6 of the Apollo Test Requirements, NPC 500-10, MSFC has established a Procedure for Certification of Flight Worthiness which involves the completion of five endorsements prior to final certification. Each stage and the Instrument Unit (IU) is covered individually by this certification procedure, and each endorsement represents a schedule milestone. Of the five endorsements, there is a KSC sign-off on Endorsements 4 and 5 (Attachment I). The Saturn Systems Office (DG) is responsible for the KSC sign-off of these endorsements.

The actions and documentation required prior to DG sign-off are stated in the following paragraphs for each endorsement. The requirements are applicable to each launch vehicle stage and the IU.

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A. ENDORSEMENT 4, TURNOVER OF HARDWARE TO KSC

1. Required Actions. Upon receipt of a stage/IU at KSC, the following actions must be verified by Launch Vehicle Operations (JA):
 - a. A visual inspection will be accomplished, in accordance with established procedures, by the appropriate KSC element and the associated contractor. All discrepancies will be noted on the inspection check-off list.
 - b. All exceptions listed in the Log of Exceptions (Attachment II) for previous endorsements will be identified and verified.
 - c. The Data Package for a stage/IU will be inspected for completeness of content as listed in Attachment 4 of MSFC Document I-IB/V-TD No. 100.
2. Documentation Required. The following documentation will be submitted by JA thru HA, to DG upon completion of the actions listed in Paragraph III A-1, but not later than 15 calendar days after arrival of the stage.
 - a. Copies of the receiving inspection report will be submitted. All discrepancies will be clearly indicated.
 - b. A statement to the effect that all exceptions listed in the Log of Exceptions have been identified and verified.
 - c. All documents not in the Data Package, as required by Attachment 4 of MSFC Document I-IB/V-TD No. 100, will be listed. Reasons for the omissions will be stated when known. If all the required documents are received, a statement to this effect will be sufficient.
3. Saturn Systems Office (DG) Responsibilities. Upon receipt of the documentation, the following actions will be accomplished:
 - a. DG will review the submitted documentation for completeness and evaluate its compatibility with Endorsement 4 requirements.
 - b. DG will sign-off Endorsement 4 with or without exceptions as determined by the status of the stage/IU and associated documentation.

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B. ENDORSEMENT 5, STAGE MODIFICATION AND CHECKOUT

1. Required Actions. Prior to the sign-off of Endorsement 5, the following actions must be verified by JA for each stage and the IU.
 - a. All discrepancies, including failures, have been resolved and corrective action taken by the responsible agency.
 - b. All mandatory engineering changes have been incorporated into the stage/IU, or scheduled for incorporation.
 - c. All required retesting due to failures, changes, etc., has been completed or identified and scheduled for completion.
 - d. The stage/IU has been checked out and successfully met the requirements specifications and criteria provided in accordance with the MSFC/KSC Sub-Agreement for Prelaunch Checkout and Launch Operations, dated December 20, 1965.
 - e. All "open work" items have been identified and scheduled for completion.
 - f. The Data Package has been updated and completed as required by Attachment 4 of MSFC Document I-IB/V-TD No. 100.
2. Documentation Requirements. The required actions of Paragraph III B-1 will be documented in the Launch Vehicle Assessment Report (LVAR) and its addenda. The input requirements for the LVAR and its addenda are specified in the appropriate Flight Readiness Review Implementation Plan, and satisfy the documentation requirements for sign-off of Endorsement 5. However, if any item is not included in the LVAR, (i.e. Data Package Up-dating) documentation can also be made by correspondence.

The LVAR and its addenda demand dates are established by the Saturn Systems Office by correspondence in accordance with the appropriate Flight Readiness Review Implementation Plan.

3. Saturn Systems Office Responsibilities. When the documentation of Paragraph III B-2 has been received, DG will:
 - a. Review and evaluate the documentation submitted for any affect on the acceptability of the stage/IU for launch, and its compatibility with Endorsement 5 requirements.

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- b. Make arrangements to sign-off Endorsement 5 with or without exceptions as determined by the status of the stage/IU as related by associated documentation and the FRR.

IV. IMPLEMENTATION

This plan will become effective immediately.

ATTACHMENT I
ENDORSEMENTS 4 AND 5 OF
CERTIFICATE OF FLIGHT WORTHINESS

CERTIFICATE OF FLIGHT WORTHINESS	
STAGE _____ VEHICLE _____	SERIAL NUMBER _____
THIS IS TO CERTIFY THAT THE FOLLOWING ITEMS HAVE BEEN ACCOMPLISHED WITH EXCEPTIONS AS NOTED:	
*EXCEPTIONS	STAGE OFFICE
CONTRACTOR	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>ENDORSEMENT FOUR: TURNOVER OF HARDWARE TO KSC</p> <p>a. A visual inspection of the stage and accompanying hardware was completed and a report of the inspection is attached.</p> <p>b. All exceptions taken during the previous endorsements have been identified.</p> <p>c. The data package is complete.</p> <p>d. The stage is in the configuration as identified in Endorsement Three.</p> </div> <div style="width: 50%;"> <div style="display: flex; justify-content: space-between; margin-bottom: 10px;"> <div style="width: 45%;"> <p>KSC (DG) _____</p> <p>PROJECT MANAGER _____</p> <p>DATE _____</p> </div> <div style="width: 45%;"> <p>MSFC _____</p> <p>QUALITY REPRESENTATIVE _____</p> <p>DATE _____</p> </div> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>MSFC _____</p> <p>STAGE MANAGER'S DESIGNEE _____</p> <p>DATE _____</p> </div> <div style="width: 45%;"> <p>MSFC _____</p> <p>STAGE MANAGER'S DESIGNEE _____</p> <p>DATE _____</p> </div> </div> </div> </div>	

ATTACHMENT I
ENDORSEMENTS 4 AND 5 OF
CERTIFICATE OF FLIGHT WORTHINESS

ENDORSEMENT FIVE: STAGE MODIFICATION AND CHECKOUT

- a. All discrepancies, including failures, have been resolved.
- b. All mandatory engineering changes approved by MSFC have been incorporated into the stage.
- c. All required retesting has been completed.
- d. The stage has been checked out and has successfully met the requirements, specifications and criteria provided by MSFC in accordance with the MSFC/KSC Sub-Agreement for Prelaunch Checkout and Launch Operations, dated December 20, 1965.
- e. The data package has been updated and is complete as required by Attachment 4 of MSFC Document I-IB/V-TD No. 100.

The undersigned considers that the stage has been satisfactorily checked out and is acceptable for launch.

KSC (DG)
PROJECT MANAGER

DATE _____

MSFC
STAGE MANAGER'S DESIGNEE

DATE _____

ATTACHMENT II
COFW LOG EXCEPTIONS

STAGE _____		VEHICLE _____		SERIAL NUMBER _____	
ENDORSEMENT NUMBER	DESCRIPTION OF EXCEPTION	DATE		REMARKS	
		ENTERED	RESOLVED		

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KSC SIGN-OFF OF CERTIFICATE OF FLIGHT
WORTHINESS ENDORSEMENTS 4 AND 5

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